Building intelligent education system

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Abstract. Smart education is an important symbol of educational informatization. We will accelerate the construction of smart education and complete the education management informatization system connecting up and down and covering all kinds of schools at all levels in the city. According to the strategy of "unified planning, pilot first, demonstration driven and gradual promotion", complete the construction system of "cloud + end" of education " Cloud refers to "one center" and "six platforms". One center refers to the education support service operation center. The "six platforms" include: Education cloud core basic support platform, education public service management platform, education cloud resource platform, renrentong online learning space platform, cloud classroom teaching service platform and campus comprehensive management service platform" "End" refers to the construction of smart school application environment. Form a new application system of smart education covering all kinds of schools, create a new model for the development of smart education, and build a new characteristic education environment of "everyone can learn, learn everywhere and learn from time to time".

Keywords: Education, Wireless environment, Software .

1   Introduce

With the accelerating process of China's modernization, the basic, overall, leading, strategic position and role of education in economic and social development are becoming increasingly prominent. Earnestly implement the working policy of "giving priority to development, educating people, reform and innovation, promoting fairness and improving quality", closely combine the needs of economic and social development and the reality of education in Hebei, further clarify the development direction, improve the development level, innovate the system and mechanism, improve the security system, and promote the scientific development of education at a new historical starting point[1]. Adhere to the public welfare and inclusive nature of education, and ensure that citizens enjoy the opportunity to receive good education according to law[2]. We will build a basic public education service system covering urban and rural areas, gradually realize the equalization of basic public education services, narrow the regional gap and the gap between urban and rural areas, and further improve the level of education equity[3]. By 2020, we will initially build a

complete and rich library of curriculum resources and learning resources of various educational disciplines at all levels. Innovate the network teaching mode and carry out high-level distance education. Focus on network teaching resources, strengthen the application of information technology, improve teachers' application level of information technology, update teaching ideas, improve teaching methods and enhance teaching effect; Encourage students to use information technology to study actively and independently, and improve their ability to analyze and solve problems by using information technology[4]. Relying on educational information resources, create a provincial education management platform and improve the modernization level of education management. Take the opportunity of school standardization construction, strengthen the allocation of teaching instruments and equipment and books and materials in primary and secondary schools, accelerate the construction of general technology laboratory, inquiry laboratory, comprehensive practice room, sports health and art facilities, and promote the standardization of teaching equipment in basic education[5].

In order to implement the 13th five year plan for the development of educational informatization, the construction of "education cloud" project is proposed. According to the strategy of "unified planning, pilot first, demonstration driven and gradual promotion", the education management information system connecting up and down and covering all kinds of schools in the city will be built through the batch construction and improvement mode of "cloud + end" from 2017 to 2027. Among them, "cloud" refers to the education support service operation center and six platforms, including IT infrastructure resources (Education cloud core infrastructure support platform) and five application platforms (education public service management platform, education cloud resource platform, renrentong online learning space platform, cloud classroom teaching service platform and campus comprehensive management service platform) "End" refers to the construction of smart school application environment[5]. Finally, a new intelligent education application system covering all kinds of schools will be formed, a new model for the development of intelligent education will be created, and a new characteristic education environment of "everyone can learn, learn everywhere and learn from time to time" will be built[6].

2 Construction requirements of education cloud core infrastructure support platform

2.1 Technical architecture requirements

The technical architecture of the education cloud core infrastructure platform must adapt to the current mainstream technology and the development of future education technology. With the rapid development of the Internet, the concept of cloud computing and cloud service is having a great impact on the development of it, changing the mode of network application in the future, and will inevitably affect the development trend of educational informatization.

The technical architecture of the education cloud core infrastructure platform must adopt the technical architecture of cloud computing, and lay a solid foundation for the development of comprehensive education applications with the cloud service concept and basic framework[7]. Building an education cloud based on the technical architecture of cloud services can provide educational information, management and application services for educational management institutions, schools, teachers, students and parents in the region.

2.2   Basic service demand

The core basic platform of education cloud must have the requirements to support business application system development and provide basic services to users, including:

System basic services: data information management, metadata management, data analysis engine, data exchange engine, application integration system, workflow service, full-text search service, report service, business form customization service, questionnaire service, single sign on and unified authentication service, etc.

User basic services: to do services, contacts, personal blog (SNS community), personal schedule management, personal storage, microblog, etc.

2.3   Database construction requirements

Build a basic education database, including student database, teacher database, school property database, etc. on the one hand, it can meet the needs of the public to easily obtain educational resources and educational services through information means; On the other hand, it can meet the needs of various educational structures and management departments to easily obtain various basic information, facilitate the timely completion of accurate educational analysis, provide services for scientific decision-making of educational services, and promote the fair and balanced development of educational services in the city.

In order to standardize database construction and services, relevant basic education database standards are formulated, such as data collection items of basic education database, data exchange standards of basic education database, application system access standards, etc.

2.4   Application consolidation and data migration requirements

The account, authority, data and interface of each application system must be integrated into a unified portal to realize one-stop operation, and the original teaching resources and data must be considered to completely and seamlessly migrate the data accumulated by the existing educational informatization users to the new platform without data loss.

2.5 Traffic demand

Education cloud needs to support the access and use of millions of users, and ensure good concurrent response ability. According to the overall logical architecture of the education cloud platform, the concurrent response capability is highly dependent on the performance of some business application services in the system. In the construction of education cloud, it is necessary to reasonably define the response indicators of these business application services to ensure the concurrent response ability of education cloud.

When determining the concurrent response capability index of education cloud, we should refer to the construction experience of large-scale systems of the same type and the construction experience of education cloud in other regions to reasonably formulate feasible technical indexes.

Reference indicators are as follows:

1. The designed capacity of the system supports 800000 users;
2. The system supports 6000 concurrent users;
3. System user login time $<=2$ seconds;
4. Page initialization operation $<=3$ seconds;
5. The maximum general operation time of the system is $<=5$ seconds.

2.6 Security requirements

Security requirements mainly include: network security, data security, use security, storage security, transmission security and data backup. Security management strategies include: unified server management, patch management, school anti-virus, server monitoring, backup and recovery, and fault handling.

2.7 Technical standards and specification requirements

Technical standards and specification requirements should include: basic support specifications, data specifications, statistical analysis database specifications, application specifications, management specifications and document specifications.

3 Five application systems of education cloud

3.1 Education public service management platform

The education public service management platform integrates education administration, school teaching management and school comprehensive management. The education administration and school teaching management constitute the main construction content of the education public service management platform of the project, and the school comprehensive management constitutes the school comprehensive management platform.

The education public service management platform constructed by the project mainly includes education comprehensive collaborative office, education basic data service, teacher-student growth file management, teacher-school comprehensive

evaluation, teaching quality evaluation, school examination management, information technology examination and teacher continuing education and training services.

3.2   Education cloud resource platform

By integrating the existing school-based resources of the state, province, city and school and the high-quality educational resources of various social educational institutions, the education cloud resource platform forms a characteristic resource supermarket covering kindergartens, primary and secondary schools, secondary and higher vocational schools, special education and higher education schools in XXX, providing more rich and practical resource retrieval tools and application modules for teachers and learning.

3.3   Renrentong e-learning space platform

Renrentong e-learning space platform is the extension of education and teaching resource consumption and cloud classroom teaching to after-school. Educational institutions and schools display teaching results and communicate home and school through the portal. Teachers, classes, students and parents display the dynamics of teaching and learning and carry out independent and personalized learning through personal space, between teachers, home and school Students communicate with each other through the community, and understand and communicate more conveniently and quickly through mobile app.

3.4   Cloud classroom teaching service platform

Cloud classroom teaching service platform is an application based on education and teaching resources as the core, which realizes accurate supporting synchronous curriculum resources and pushes them to classroom teaching and online learning space. At the same time, it can support universal intelligent whiteboard teaching tools and universal normal recording and broadcasting teaching, and support online classroom and interactive classroom teaching.

3.5   Campus integrated management platform

The campus integrated management platform, that is, through the management of the hardware related to the application environment of the smart school: video monitoring, access control all-in-one card, information release, smart classroom and other equipment, realizes the management functions of equipment status, switch on and off, data push, early warning and alarm, capture video, data statistics and so on, and helps the competent department and the school effectively supervise and manage people, finance, materials and things.

4 Conclusion

From a domestic perspective, the project conforms to the national education development plan and the national economic development plan; From an international perspective, it is the common needs of national development and social research. Through the analysis of the previous chapters, the preliminary investigation of the project, the development of economic environment, the needs of education industry and construction conditions have been mature. In conclusion, the implementation of this method is necessary and feasible.

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